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TITLE: Vaccine composition comprising penetration enhancers  
INVENTOR(S): **Alpar, Hazire Oya; Somavarapu, Satyanarayana; Williamson, Ethel Diane; Baillie, Leslie William James**  
PATENT ASSIGNEE(S): The Secretary of State for Defence, UK  
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PATENT INFORMATION:

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WO 2000056361	A2	20000928	WO 2000-GB1104	20000323
WO 2000056361	A3	20010301		
W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
CA 2366908	AA	20000928	CA 2000-2366908	20000323
EP 1163001	A2	20011219	EP 2000-912777	20000323
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
JP 2002540076	T2	20021126	JP 2000-606265	20000323
NZ 514323	A	20030328	NZ 2000-514323	20000323
AU 762078	B2	20030619	AU 2000-34424	20000323
PRIORITY APPLN. INFO.:			GB 1999-6694	A 19990324
			GB 1999-6696	A 19990324
			WO 2000-GB1104	W 20000323

AB A pharmaceutical composition comprising: (i) a biol. active agent; (ii) an adjuvant chemical which increases the effect of the biol. active agent, said chemical selected from one or more of: (A) a polyamino acid, (B) a vitamin or vitamin derivative, (C) cationic pluronics, (D) a clathrate, (E) a complexing agent, (F) cetrimides, (G) an S-layer protein, or (H) methyl-glucamine; (iii) a pharmaceutically acceptable carrier or diluent, provided that when the chemical (iii) above is selected from (D) or (E), the biol. active agent is an agent which is capable of generating a protective immune response in an animal to which it is administered. The composition, which may be in the form of a solution or particles such as microspheres or liposomes, is particularly useful for mucosal administration of vaccines especially be the intra-nasal route or by parenteral routes. Mice were intranasally immunized with admixed F1 (5µg) and V (1µg) antigens of Yersinia pestis in conjunction with 2.5% cyclodextrin (I). Serum was analyzed on the day 14 for the presence of anti-V and anti-F1 IgG antibodies. I had significant absorption enhancer effects as compared to the controls.

IC ICM A61K039-39

ICS A61K039-02; A61K009-16; A61K009-51; A61P031-04

CC 63-3 (Pharmaceuticals)

## Section cross-reference(s): 16

- ST vaccine penetration enhancer cyclodextrin immunoadjuvant
- IT Proteins, specific or class  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (S-layer (surface layer); vaccine composition comprising penetration enhancers)
- IT Glycoproteins, specific or class  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (S-layer (surface-layer); vaccine composition comprising penetration enhancers)
- IT Immunostimulants  
 (adjuvants; vaccine composition comprising penetration enhancers)
- IT Toxoids  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (diphtheria; vaccine composition comprising penetration enhancers)
- IT Drug delivery systems  
 (liposomes; vaccine composition comprising penetration enhancers)
- IT Drug delivery systems  
 (microparticles; vaccine composition comprising penetration enhancers)
- IT Drug delivery systems  
 (microspheres; vaccine composition comprising penetration enhancers)
- IT Vaccines  
 (nasal; vaccine composition comprising penetration enhancers)
- IT Vaccines  
 (parenteral; vaccine composition comprising penetration enhancers)
- IT Polyamides, biological studies  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (poly(amino acids); vaccine composition comprising penetration enhancers)
- IT Toxoids  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (tetanus; vaccine composition comprising penetration enhancers)
- IT Bacillus anthracis  
 Mucous membrane  
 Permeation enhancers  
 Surfactants  
 Vaccines  
 Yersinia pestis  
 (vaccine composition comprising penetration enhancers)
- IT Quaternary ammonium compounds, biological studies  
 Vitamins  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (vaccine composition comprising penetration enhancers)
- IT Clathrates  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (vaccine composition comprising penetration enhancers)
- IT 106392-12-5, Pluronic  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological

study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(cationic; vaccine composition comprising penetration enhancers)

IT 6284-40-8, Methyl-glucamine; 7585-39-9,  $\beta$ -Cyclodextrin  
12619-70-4, Cyclodextrin 24937-49-3, Polyornithine 25104-12-5,  
Polyornithine 70694-72-3, Chitosan hydrochloride  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(vaccine composition comprising penetration enhancers)

IT 83-44-3, Deoxycholic acid 8044-71-1, Cetrимide 9002-96-4,  
D $\alpha$ -Tocopheryl polyethylene glycol succinate 26161-42-2  
33135-50-1, PolyL-lactide  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(vaccine composition comprising penetration enhancers)